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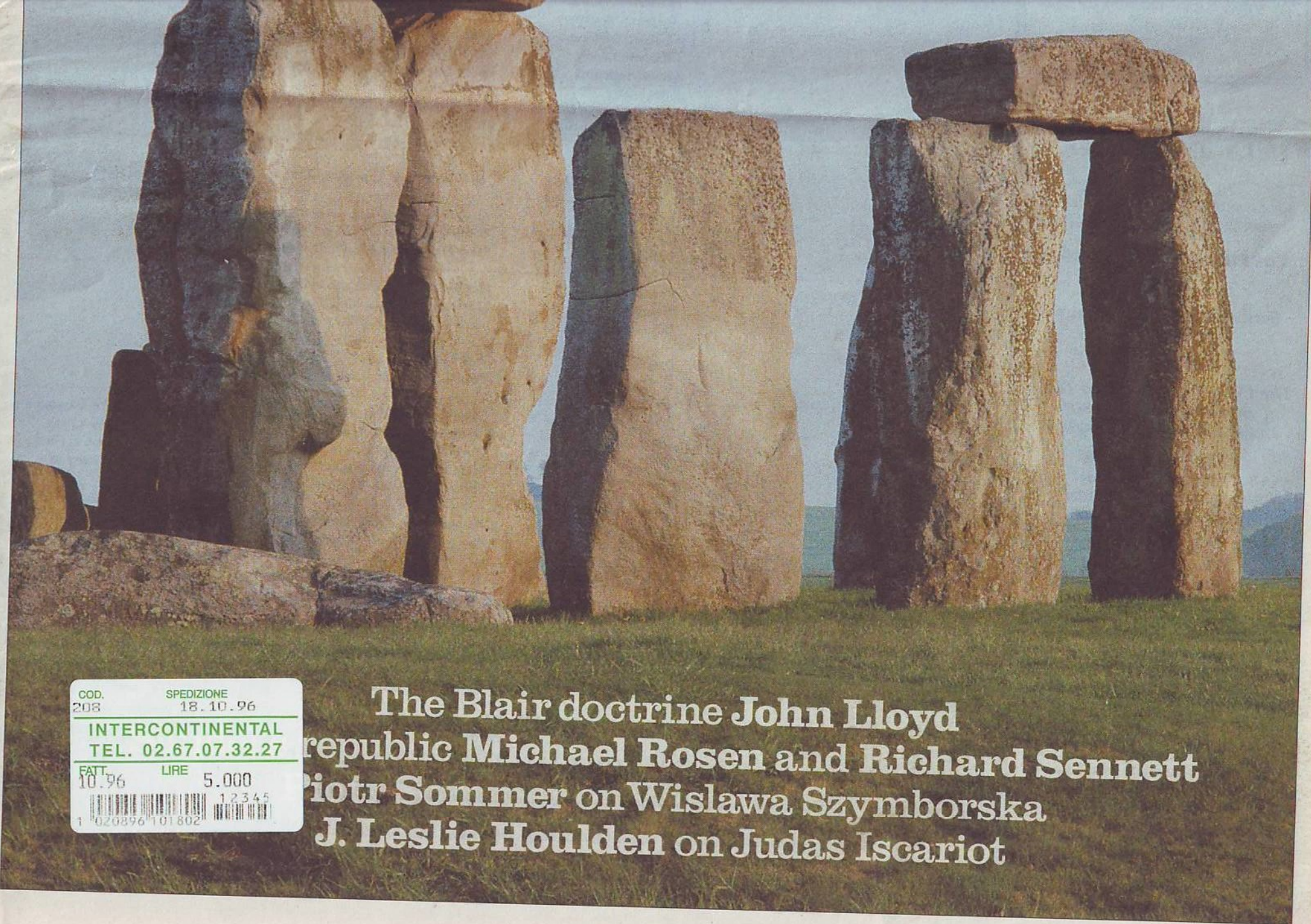
John Ray

Astronomers at Stonehenge **Colin Renfrew**

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A sceptic's henge

COLIN RENFREW

John North

STONEHENGE

Neolithic man and the cosmos

609pp. HarperCollins. £25.

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Stonehenge has not, in the past, been altogether well served by those astronomers and mathematicians who have applied their ingenuity in attempts to show how the apparent simplicity of the monument (which seems evidently aligned on the midsummer sunrise) is underlain by subtle complexities. Leaving aside the early elaborations of Norman Lockyer and Sir Flinders Petrie, we have seen several such sophisticated approaches in recent decades. Gerald Hawkins, with *Stonehenge Decoded* in 1966, achieved brief notoriety through his computer-aided analysis, and came to the reasonable conclusion that the monument was concerned with the movements of the sun and moon, and that apparent stellar alignments were not significant. Fred Hoyle, in an article in *Nature* in the same year, hailed "Stonehenge: an eclipse predictor". But the late Professor Richard Atkinson in his splendidly scathing "Moonshine on Stonehenge", published in *Antiquity*, again in the same year, dismissed these as over-elaborate projections of the modern mind imposed on the prehistoric stones, and formulated a wise dictum to the effect that to show how a structure *could* have been used is one thing; to make plausible claims, that it *was* so used is quite another. Jacquetta Hawkes in similar vein the following year in her *Antiquity*

astronomical reasons, with which he deals very clearly, these directions varied over time, and what was a precise alignment in one century would have gone off line a couple of centuries later. In a crucial section, "A Postscript on chance", he sets out to answer the potential sceptic who might

argue thus, taking fairly wide ranges for the limits mentioned. I do not believe that long barrows were placed in relation to the stars. If I were to drop a typical long barrow on the landscape at random, the chances are eight in ten that I should be able to find a date within a plausible period of prehistory at which your roughly opposed lines of sight would align accurately on bright stars.

I feel myself to be that potential sceptic, and greatly value the lucidity and fairness of his argument at this point, but am not entirely persuaded by it. This exposition on the matter of the stellar alignment of the long barrows is, however, set out as a lengthy adumbration of particular instances, not in itself designed to make a quantified or statistical case. At this stage in my reading, I was drawn in but not yet convinced.

In his third chapter, "Cursus and enclosures", North deals with the great linear and ditched monuments of the later neolithic period, arguing that observations were made by standing actually in the ditch, so that the line of sight was a

some of these hill figures has recently been questioned, and a Bronze Age date proposed instead, I am distinctly sceptical about a date a millennium earlier, proposed simply on the basis of possible stellar alignments which would work if that date were accepted.

So far we have advanced some 220 pages with these bold if questionable hypotheses, and haven't even reached Stonehenge. When we do, it is with several helpful insights. North emphasizes the importance of considering how the sight lines actually work in practice as one walks through the monument, showing how two upright posts may be used in four different ways to align on a part of the disc of the sun or moon. His conclusion is that Stonehenge did indeed embody significant alignments of the sun and moon, but that viewing was undertaken *across* the monument, not from its centre.

The most refreshing part of North's discussion of Stonehenge is his consideration of the blocking of lines of sight as a result of the very profusion of stones. He sees the monument as constructed to limit the sight lines open to the observer: "The Geometry of Obscuration". He reaches the conclusion that Stonehenge was constructed to facilitate observation of the setting of the midwinter sun rather than its midsummer rising, as has generally been held. The discussion is a detailed one, and his arguments on this point are very plausible, although faith in the soundness of his judgment has by now been shaken by his astral enthusiasm in the matter of the hill figures. It is further dented in the penultimate chapter, which discusses the significance



Digging with Helena

JOHN WILKES

William H. C. Frend

THE ARCHAEOLOGY OF EARLY CHRISTIANITY

A history

412pp. Geoffrey Chapman. £39.50

(paperback, £15).

0 225 66718 5

For many Christians, faith is not nourished, nor is the practice of worship enhanced, through authentic relics of early Christianity, however refined the historical or archaeological techniques by which they have been obtained. Moreover, the archaeology of early Christianity has for the most part been a poor relation in the academic family, with few professorships and few institutes dedicated to its study. Many have found comfort and inspiration in the relics and architecture of later times, when Christianity had triumphed and claimed the obedience of powerful rulers. It is not much different with anniversaries: the recent papal visit to France was occasioned by the 1,500th anniversary of the baptism of Clovis (or Chlodovech, as the older history books preferred), hereditary king of the Salian Franks and a man of quite exceptional brutality. That event, the adherence of a powerful chief to Orthodox Catholic Chris-

Richard Atkinson in his splendidly scathing "Moonshine on Stonehenge", published in *Antiquity*, again in the same year, dismissed these as over-elaborate projections of the modern mind imposed on the prehistoric stones, and formulated a wise dictum to the effect that to show how a structure *could* have been used is one thing; to make plausible claims, that it was so used is quite another. Jacquetta Hawkes in similar vein the following year in her *Antiquity* article, "God in the machine", reached the wise conclusion that: "Every age has the Stonehenge it deserves – or desires."

John North is Professor of the History of Philosophy and of the Exact Sciences in the University of Groningen, and his publications include a highly respected work on the history of astronomy. There can be little doubt that on astronomical matters he writes with authority. *Stonehenge: Neolithic man and the cosmos* is more than 600 pages long, and it comes with encomia on the dust-jacket from Roger Penrose and Patrick Moore: "It must surely become the standard, both for scholars and general readers." I did not expect, therefore, that the over-elaboration sometimes displayed by others versed in astronomy would be repeated here.

To my regret, I have to say that I read the book with a growing sense of incredulity and disappointment. It begins auspiciously. In the preface, the author offers some very sound introductory observations on what is coming to be called cognitive archaeology – that is to say, the attempt, from the surviving material, to infer something about the thought processes of early communities. As he soundly remarks, "Stonehenge impresses the onlooker more for its engineering than for its cosmic qualities, but it was in a very real sense a cosmos, a geometrically ordered monument aligned on the universe of stars, Sun and Moon, and an embodiment of the spiritual forces they represented to most of mankind". This introduces his project lucidly and modestly.

His first substantial undertaking is to set out the case that the long barrows (long earthen burial mounds) of the early farming period were laid out so that their gently diverging sides (they are trapezoidal in shape) might give the alignments for the ten or so brightest stars in the sky. For



"Stonehenge – The mysterious monument" (c 1836) by John Constable, detail

more elevated one, better suited for observing the stars. Yet here the observer had to judge lines at right-angles to the ditch; no unique and unequivocal lines of sight are offered. I found this proposal unexpected and intriguing. But doubts grew with the proposal that the locations of long barrows, as seen on the map, are sometimes in alignment with each other and with significant star lines. The admission that one of the significant points of intersection (A 39) is not actually a long barrow but a (later) bowl barrow "but presumably on the site of an earlier monument of importance" is disturbing. That sort of enforced accommodation of data to the underlying hypotheses was termed "saving the phenomena" at the time that Copernicus was writing. Here we have come close to the world of ley lines. The next chapter – "Stars in Chalk" – deals with hill figures: the Uffington White Horse, the Wilmington Long Man and the Cerne Giant, which are such an engaging feature of England's chalklands. He presents arguments to draw them into his stellar framework. Having done so, he feels able to date these features through the movements of stellar azimuths which coincide, at dates around 2000 BC, with the various sight lines which he proposes for viewing these figures. He concludes that the White Horse was a neolithic star marker. But while the generally accepted Iron Age date for

of the celebrated incised gold lozenge from the Bush Barrow (near Stonehenge), whose simple but elegant geometrical markings have been the object of speculation. None of that, and nothing here, persuades me that the incised lines are more than what they at first seem: elegant decoration on a piece of fine goldwork. The book ends with a wide-ranging chapter, that offended my own personal prejudices by linking this shift in preoccupation from stellar to solar and lunar concerns which he recognizes at the end of the neolithic period with "the great westward migrations that brought the largely male-oriented Indo-European society to Europe and Britain". After 522 rather arduous pages, the spirit quails before another clash of world views. It is difficult to take the remainder of the book seriously with these as its conceptual foundations.

With his emphasis on "the Geometry of Obscuration", I believe that John North has made a real contribution to our understanding of the henge monuments and of Stonehenge itself. But the book could profitably have been shorter. And to redate the chalk hill figures to the neolithic period on the basis of supposed stellar alignments seems an undertaking so bizarre as to place this work firmly among those of the astronomer enthusiasts whose ingenuity was effectively called into question thirty years ago by Richard Atkinson and Jacquetta Hawkes.

Many have found comfort and inspiration in the relics and architecture of later times, when Christianity had triumphed and claimed the obedience of powerful rulers. It is not much different with anniversaries: the recent papal visit to France was occasioned by the 1,500th anniversary of the baptism of Clovis (or Chlodovech, as the older history books preferred), hereditary king of the Salian Franks and a man of quite exceptional brutality. That event, the adherence of a powerful chief to Orthodox Catholic Christianity in preference to the Arian version, to which most of the Goths in the western Roman empire subscribed, can be seen to have marked the rise of the Merovingian kings who were to rule most of Gaul for more than two centuries and whose dynastic squabbles and crimes are faithfully registered in the history of Gregory of Tours. Before its adoption by Constantine in the early fourth century, Christianity's practitioners suffered persecution by the State, often eagerly supported by the majority who would flock to witness the scenes of their suffering in the arena. By any reckoning, the courage and fortitude of those who were killed at Lyon in the summer of AD 177, in prison or in the arena, should command more regard than the King of the Franks who opted for Orthodoxy, having earlier made a promise to do so when things were going badly in a battle against other Germans. What happened at Lyon is also more disturbing, because the dispatch of Christians and other unpopular minorities to provide a spectacle in the arena had been specifically sanctioned by the high-principled and much admired emperor Marcus Aurelius. He was trying to ease the obligation placed on the wealthy classes to provide gladiatorial shows during their terms of public office, on account of the financial hard times brought on by prolonged wars along the northern frontier.

The story William H. C. Frend tells in this lively account begins in the fourth century with the excavation directed, spade in hand, by Helena, mother of the Emperor Constantine, on the supposed site of the Crucifixion. Deep digging by a company of soldiers revealed three crosses and the True Cross was identified when its touch revived a man recently deceased. The impact of the find was profound and long-lasting: now, and for many centuries to come,